

**CLAIMS**

1. A method of determining a search window for processing signals in a wireless communications system, the method comprising:

determining a distance between at least one mobile terminal and a base station based on their respective locations;

estimating a nominal PN offset of signals transmitted between the base station and the at least one mobile terminal based on the distance between the at least one mobile terminal and the base station; and

determining a search window used for processing the received signals based on the estimate of the nominal PN offset.

2. A method as defined in Claim 1, wherein estimating a nominal PN offset and determining a search window are performed in the base station.

3. A method as defined in Claim 2, wherein the estimated nominal PN offset is transmitted from the base station to the at least one mobile terminal.

4. A method as defined in Claim 2, wherein the search window is transmitted from the base station to the at least one mobile terminal.

5. A method as defined in Claim 1, wherein estimating a nominal PN offset and determining a search window are performed in the at least one mobile terminal.

6. A method as defined in Claim 5, wherein the signals received at the at least one mobile terminal include a pilot signal.

7. A method as defined in Claim 6, wherein the pilot signal is encoded with a pseudorandom code.

8. The method as defined in Claim 7, wherein different base station pilot signals are distinguished by their unique PN offsets.

9. A mobile terminal comprising:

a receiver configured to receive a communication signal from a base station;

a controller configured to estimate a nominal PN offset of the received communication signals based on a distance between the mobile terminal and the base station, and to determine a search window in response to the distance between the mobile terminal and the base station; and

a search engine configured to accept the search window and to perform a search of the received communication signal using the search window.

10. A mobile terminal as defined in Claim 9, wherein the received communication signal comprises a pilot signal.

11. A mobile terminal comprising:

a receiver configured to receive communication signals from a base station;

a location engine configured to accept navigational information and to thereby determine location of the mobile terminal;

a controller configured to estimate a nominal PN offset of the received communication signals based on a distance between the mobile terminal and the base station based on the location of the mobile terminal, and to determine a search window in response to the distance from between the mobile terminal and the base station; and

a search engine configured to accept the search window and to perform a search of the received communication signal using the search window.

12. A mobile terminal comprising:

a receiver configured to receive communication signals from a base station;

a controller configured to estimate a nominal frequency of the received communication signals based on a relative velocity between the mobile terminal and the base station, and to determine a frequency hypothesis; and

a search engine configured to accept the frequency hypothesis and to perform a search of the received communication signal using the frequency hypothesis.

13. A mobile terminal as defined in Claim 12, wherein the received communication signal is a pilot signal.

14. A mobile terminal comprising:

a receiver configured to receive communication signals from a base station;

a location engine configured to accept navigational information and thereby determine a velocity of the mobile;

a controller configured to estimate a nominal frequency of the received communication signals based on the velocity between the mobile terminal and the base station, and to determine a frequency hypothesis; and

a search engine configured to accept the frequency hypothesis and to perform a search of the received communication signal using the frequency hypothesis.

15. A base station comprising:

a receiver configured to receive communication signals from a mobile terminal;

a controller configured to estimate a nominal PN offset of the received communication signals based on a distance between the mobile terminal and the base station, and to determine a search window in response to the distance from between the mobile terminal and the base station; and

a search engine configured to accept the search window and to perform a search of the received communication signal using the search window.

16. A base station as defined in Claim 15, wherein the nominal PN offset is transmitted from the base station to at least one mobile terminal.

17. A base station as defined in Claim 15, wherein the search window is transmitted from the base station to at least one mobile terminal.

18. A base station comprising:
  - a receiver configured to receive communication signals from a mobile terminal;
  - a location engine configured to accept navigational information and thereby determine a location of the mobile terminal;
  - a controller configured to estimate a nominal PN offset of the received communication signals based on a distance between the mobile terminal and the base station based on the location of the mobile terminal, and to determine a search window in response to the distance from between the mobile terminal and the base station; and
  - a search engine configured to accept the search window and to perform a search of the received communication signal using the search window.
19. A base station as defined in Claim 18, wherein the nominal PN offset is transmitted from the base station to the mobile terminal.
20. A base station as defined in Claim 18, wherein the search window is transmitted from the base station to the mobile terminal.
21. A base station comprising:
  - a receiver configured to receive communication signals from a mobile terminal;
  - a controller configured to estimate a nominal frequency of the received communication signals based on a relative velocity between the mobile terminal and the base station, and to determine a frequency hypothesis; and
  - a search engine configured to accept the frequency hypothesis and to perform a search of the received communication signal using the frequency hypothesis.
22. A base station as defined in Claim 21, wherein the estimated nominal frequency is transmitted from the base station to the mobile terminal.

23. A base station as defined in Claim 21, wherein the frequency hypothesis is transmitted from the base station to the mobile terminal.

24. A base station comprising:

- a receiver configured to receive communication signals from a mobile terminal;
- a location engine configured to accept navigational information and thereby determine a velocity of the mobile terminal;
- a controller configured to estimate a nominal frequency of the received communication signals based on the velocity between the mobile terminal and the base station, and to determine a frequency hypothesis; and
- a search engine configured to accept the frequency hypothesis and to perform a search of the received communication signal using the frequency hypothesis.

25. A base station as defined in Claim 24, wherein the estimated nominal frequency is transmitted from the base station to the mobile terminal.

26. A base station as defined in Claim 24, wherein the frequency hypothesis is transmitted from the base station to the mobile terminal.